

-- 20. (New) A method of screening for an agent that modulates capsaicin receptor function, the method comprising:

A2 a) combining a candidate agent with a eukaryotic cell comprising a recombinant nucleic acid comprising a nucleotide sequence that encodes a biologically active capsaicin receptor polypeptide, which nucleotide sequence is operably linked to a promoter, wherein the capsaicin receptor polypeptide is expressed on the cell surface; and

b) determining the effect of said agent on capsaicin receptor function.

21. (New) The method of claim 20, wherein said determining is by measuring capsaicin receptor-mediated increase in intracellular concentration of a cation.

22. (New) The method of claim 21, wherein the cation is selected from the group consisting of calcium, magnesium, potassium, cesium, and sodium.

23. (New) The method of claim 21, wherein the cation is calcium.

24. (New) The method of claim 20, wherein said determining is by measuring a capsaicin receptor-mediated electrophysiological response.

25. (New) The method of claim 24, wherein the electrophysiological response is an inward cation-specific current.

26. (New) The method of claim 23, wherein the response is measured using a fluorescent voltage-sensitive dye.

27. (New) The method of claim 20, wherein said determining is by measuring blocking the activity of a capsaicin receptor antagonist.

28. (New) The method of claim 27, wherein the capsaicin receptor antagonist is selected from the group consisting of capsazepine and ruthenium red.

29. (New) The method of claim 20, wherein said determining is by measuring blocking the activity of a capsaicin receptor agonist.

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30. (New) The method of claim 29, wherein the capsaicin receptor agonist is selected from the group consisting of resiniferatoxin and capsaicin.

31. (New) The method of claim 20, wherein said determining is by measuring capsaicin receptor-mediated apoptosis.

32. (New) The method of claim 20, wherein said determining is by measuring calcium-induced reporter gene expression.

33. (New) The method of claim 20, wherein the cell is selected from the group consisting of an amphibian oocyte, a mammalian cell line, and a cultured neuron.

34. (New) The method of claim 20, wherein the capsaicin receptor is a mammalian capsaicin receptor.

35. (New) The method of claim 34, wherein said capsaicin receptor is encoded by a polynucleotide that hybridizes under stringent hybridization conditions to a polynucleotide having the sequence set forth in SEQ ID NO:1. --

I. REMARKS

Formal Matters

Claims 20-35 are pending after entry of the amendments set forth herein.

Originally filed claims 1-19 are canceled without prejudice to renewal.

New claims 20-35 are added. Support for new claims 20-35 is found in originally filed claim 19, and throughout the specification, including at the following exemplary locations: page 26, line 1 to page 27, line 6; page 15, lines 11-19; page 42, lines 16-18; Example 1, page 41, line 1 to page 42, line 9; Examples 5-9, page 45, line 1 to page 51, line 5. Accordingly, no new matter is added.

Applicants respectfully request entry of new claims 20-35, for prosecution on the merits.